

CLAIMS

We claim:

1. A biochip cartridge comprising:

a) a reaction chamber comprising:

5 i) a substrate comprising an array of electrodes, each comprising:

A) a self-assembled monolayer; and

B) a capture binding ligand;

II) an inlet port for the introduction of reagents; and

10 b) interconnects to allow the electrical connection of said electrodes to a processor.

2. A biochip cartridge according to claim 1 wherein said capture binding ligands are capture probes.

3. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises a gasket to retain fluid in contact with said array.

15 4. A biochip cartridge according to claim 1 further comprising a seal on said inlet port.

5. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises an outlet port.

6. A biochip cartridge according to claim 1 wherein said reaction chamber is configured to minimize the introduction or retention of air bubbles upon introduction of a sample.

20 7. A biochip cartridge according to claim 1 wherein said array is on one surface of said substrate.

8. A biochip cartridge according to claim 1 wherein two surfaces of said substrate each comprise an array.

9. A biochip cartridge according to claim 1 further comprising a cap comprising at least one storage well comprising assay reagents.

25 10. A device for multiple biochip analysis comprising at least two stations configured to receive a biochip cartridge.

11. A device according to claim 10 wherein at least one station comprises a thermocontroller.
12. A device according to claim 10 wherein every station comprises a thermocontroller.
13. A device according to claim 10 wherein at least one station comprises a signalling system.
14. A device according to claim 10 wherein at least one station comprises a memory chip
5 reader.
15. A device according to claim 10 wherein at least one station comprises a barcode reader.
16. A device according to claim 10 wherein at least one station comprises a memory chip
writer.
17. A device according to claim 10 wherein at least one station comprises an encryption
10 system.
18. A device according to claim 10 further comprising at least two biochip cartridges.
19. A device according to claim 10 further comprising a liquid handling system.
20. A device according to claim 10 further comprising a wireless communication component.
21. A device according to claim 10 further comprising a device board.
- 15 22. A device according to claim 10 further comprising a processor.
23. A device according to claim 10 further comprising a global positioning system.